



# STIC Search Report

## EIC 3700

STIC Database Tracking Number: 183004

**TO: Paul Durand**  
**Location: RND 5b79**  
**Art Unit: 3721**

**Serial: 10/789786**

**From: Jeanne Horrigan**  
**Location: RND 8B31**  
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### Search Notes

Attached are the search results for the driver cap. I tagged the references that I thought were most relevant and included images of several of the patents, but I suggest that you review ALL of the results.

Also attached is a search feedback form. Completion of the form is voluntary. Your completing this form would help us improve our search services.

I hope the search results are useful. Please feel free to contact me if you have any questions or want additional searching on this application.

# NON-PATENT LITERATURE

File 6:NTIS 1964-2006/Mar W2  
 (c) 2006 NTIS, Intl Cpyrght All Rights Res

File 8:Ei Compendex(R) 1970-2006/Mar W2  
 (c) 2006 Elsevier Eng. Info. Inc.

File 94:JICST-EPlus 1985-2006/Jan W1  
 (c) 2006 Japan Science and Tech Corp (JST)

File 144:Pascal 1973-2006/Mar W1  
 (c) 2006 INIST/CNRS

File 95:TEME-Technology & Management 1989-2006/Mar W3  
 (c) 2006 FIZ TECHNIK

File 99:Wilson Appl. Sci & Tech Abs 1983-2006/Feb  
 (c) 2006 The HW Wilson Co.

File 118:ICONDA-Intl Construction 1976-2006/Feb  
 (c) 2006 Fraunhofer-IRB

File 63:Transport Res (TRIS) 1970-2006/Feb  
 (c) fmt only 2006 Dialog

File 65:Inside Conferences 1993-2006/Mar 27  
 (c) 2006 BLDSC all rts. reserv.

Set Items Description

S1 142594 DRIVER? ? OR HAMMER? ? OR MALLET? ? OR MAUL? ? OR SLEDGEHAMMER? ? OR SLEDGE OR SLEDGES OR PILEDRIIVER? ? OR STRIKER? ?

S2 365632 ROD OR RODS OR BOLT OR BOLTS OR POLE OR POLES OR SPIKE OR SPIKES OR STAKE OR STAKES OR SHAFT? ? OR NAIL? ?

S3 1503612 CAP OR CAPS OR SLEEVE OR SLEEVES OR COVER OR COVERS OR COVERING? ? OR PROTECT??? OR JACKET? ?

S4 1671102 BORE OR BORES OR BOREHOLE? ? OR CAVITY OR CAVITIES OR CHAMBER? ? OR CHAMBRE? ? OR SPACE OR SPACES OR SOCKET? ?

S5 1678043 TUBE OR TUBES OR TUBING OR TUBULAR OR TUBELIKE OR CYLIND? - OR PIPE OR PIPES OR CONDUIT? ? OR CHANNEL? ?

S6 255 S1 AND S2 AND S3

S7 128623 S4 AND S5

S8 4 S6 AND S7

**S9 4 RD (unique items)**

S10 202 S1:S2(S)S3 AND S6

S11 8 S10/2005:2006

S12 194 S10 NOT S11

S13 174 RD (unique items)

S14 37 S13 AND S4:S5

S15 33 S14 NOT S8

S16 33 RD (unique items)

**S17 33 Sort S16/ALL/PY,A**

S18 78 S6/TI

S19 0 S1/TI AND S2/TI AND S3/TI

S20 78 S1:S3/TI AND S6

S21 71 S20 NOT (S8 OR S14)

S22 64 RD (unique items)

S23 1 S22/2005:2006

**S24 2 S22/2004 [not relevant]**

S25 61 S22 NOT S23:S24

S26 26646 (PREVENT? OR PROTECT?) (3N) (DAMAG??? OR MUSHROOM??? OR DEFORM? OR FRAY??? OR SPLAY???)

**S27 2 S25 AND S26**

S28 6 S6 AND S26

S29 4 S28 NOT (S27 OR S8 OR S14)

S30            4    RD   (unique items) [not relevant]

9/7/1        (Item 1 from file: 95)

DIALOG(R) File 95:TEME-Technology & Management

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00551195 M91123897636

**Non-impact keyless chuck**

(Schluesselloses Futter)

Huff, RO; Jordan, PT; Forquer, WF

Jacobs Chuck Technology, Wilmington, USA

1991

Document type: European patent application    Language: English

Record type: Abstract

ABSTRACT:

A chuck for use with a manual or powered **driver** having a rotatable drive **shaft** comprising a generally **cylindrical** body member having a nose section and a tail section and a first circumferential groove formed therein intermediate said nose and tail sections, said tail section having an axial **bore** formed therein to mate with said drive **shaft** of said **driver** and said nose section having an axial **bore** formed therein and a plurality of angularly disposed passageways formed therethrough and intersecting said axial **bore** and said first circumferential groove, a plurality of jaws slidably positioned in each of said angularly disposed passageways, each of said jaws having a jaw face formed on one side thereof and threads formed on the opposite side thereof, a split nut rotatably mounted in said circumferential groove and in engagement with said threads on said jaws, said split nut having a first bearing race formed thereon, a generally **cylindrical** front **sleeve** member fixed on said split nut and overlying the said nose section of said body member, a bearing thrust ring fixed on said body member and having a second bearing race formed thereon and in juxtaposition with said first bearing race, and an anti-friction bearing disposed between said first and second bearing races, wherein the plurality of jaws are identical and the threads formed on said jaws have a relatively fine pitch. (No obligations as to scope of patent protection and application.)

17/7/7        (Item 7 from file: 8)

DIALOG(R) File 8:Ei Compendex(R)

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00568062    E.I. Monthly No: EI7609060087    E.I. Yearly No: EI76030155

**Title: PILING FOR NORTH SEA INSTALLATIONS.**

Author: Fox, D. A.

Corporate Source: Harris & Partners

Source: Offshore Eur 75 Conf, Prepr, Aberdeen, Scotl, Sep 16-19 1975 Pap OE-75 222, 10 p. Publ by Spearhead Publ Ltd, Aberdeen, Scotl, 1975

Publication Year: 1975

Language: ENGLISH

Journal Announcement: 7609

Abstract: This paper presents a review of many of the problems encountered in the design and installation of the **hammer** -driven **pipe** piles which are used predominantly to support the **jacket** or template-type platforms in the North Sea. The installation of these platforms is often critically dependent on the " weather window " . The driven piles mostly develop their support from friction along their deeply embedded **shafts** , and the several empirical and fundamental theories now available are

reviewed, with emphasis upon the necessity to improve their correlation with the theories of dynamic driving of the piles. 18 refs.

17/7/11 (Item 11 from file: 6)  
DIALOG(R) File 6:NTIS  
(c) 2006 NTIS, Intl Cpyrght All Rights Res. All rts. reserv.  
1145523 NTIS Accession Number: NTN84-0957  
**Quieted Hand-Held Percussion Drills**  
(NTIS Tech Note)  
Department of the Interior, Washington, DC.  
Corp. Source Codes: 004199000  
Dec 84 1p  
Languages: English  
Journal Announcement: GRAI8502  
Write NTIS for information about Tech Notes subscriptions and back issue packages available.  
NTIS Prices: Not available NTIS  
Country of Publication: United States  
This citation summarizes a one-page announcement of technology available for utilization. Percussion drills are the noisiest machines used in underground mines; noise levels of 115 to 120 dBA are common. Hand-held pneumatic percussion drills pose a particularly difficult problem because the operator cannot be isolated from the noise source. Two similar but slightly different drills were developed--a 'coal stopper' for drilling roof **bolt holes** in coal mines, and a more powerful 'hard rock' drill for production blastholes. These drills share several important design features found in no other rock drills of their class. First, the drill **hammers** have been redesigned to perform the airpotting functions normally achieved through a complex series of valves. Second, gear-type independent rotation motors replace the standard rifle bar and pawl system as the means of achieving drill **rod** rotation. Third, the drill **cylinders** surrounding the **hammers** are isolated from the outer drill **covers** through rubber vibration-isolation pads. ...FOR ADDITIONAL INFORMATION: Contact: Mr. William W. Aljoe, at the Bureau of Mines' Pittsburgh Research Center, P. O. Box 18070, Cochran's Mill Road, Pittsburgh, PA 15236; (412) 675-6831.

17/7/12 (Item 12 from file: 6)  
DIALOG(R) File 6:NTIS  
(c) 2006 NTIS, Intl Cpyrght All Rights Res. All rts. reserv.  
1430180 NTIS Accession Number: TIB/A89-80168  
**Laermminderung beim Drehschlagschrauben. Abschlussbericht. (Impact wrench noise reduction. Final report)**  
Weck, M. ; Grund, P. ; Rosenbauer, T. ; Stave, H.  
Fraunhofer-Inst. fuer Produktionstechnologie, Aachen (Germany, F.R.).  
Abt. Produktionsmaschinen.  
Corp. Source Codes: 093317001  
Sponsor: Bundesministerium fuer Forschung und Technologie, Bonn (Germany, F.R.).  
10 Jan 86 47p  
Languages: German  
Journal Announcement: GRAI8911  
In German, With 6 refs., 20 figs.  
Order this product from NTIS by: phone at 1-800-553-NTIS (U.S. customers); (703)605-6000 (other countries); fax at (703)321-8547; and

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NTIS Prices: PC E07

Country of Publication: Germany, Federal Republic of

Contract No.: BMFT 01 VA 63

For driving screws, **bolts** and nuts, power tools like: Torque wrenches or impact wrenches are being used. The former are very accurate and smooth in operation, but they fully transmit spindle torque to the operator's handle. Impact wrenches have very little kickback and torque reaction, but they are considerably less accurate and their **hammer** mechanism can be the source of excessive noise and vibration. Within the reported projet, a new system has been developed eliminating torque reaction. A special kind of **cap** screw with an additional hex **socket** at the end is used. The power **driver** has both a **socket** for running the nut and a hex key driving the screw. The system has been tested successfully for the assembly of colliery equipment. (orig./RHM). (TIB: FR 1450.) (Copyright (c) 1989 by FIZ. Citation no. 89:080168.)

17/7/14 (Item 14 from file: 63)

DIALOG(R)File 63:Transport Res(TRIS)

(c) fmt only 2006 Dialog. All rts. reserv.

00607154 DA

**TITLE: APPLICATIONS OF CONTINUOUS DYNAMIC PROBING IN GROUND INVESTIGATION .  
FIELD TESTING IN ENGINEERING GEOLOGY. PROCEEDINGS OF THE TWENTY-FOURTH  
ANNUAL CONFERENCE OF THE ENGINEERING GROUP OF THE GEOLOGICAL SOCIETY,  
SUNDERLAND POLYTECHNIC, SEPTEMBER 4-8 1988**

**AUTHOR(S):** Card, GB; Roche, DP; Herbert, SM

**CORPORATE SOURCE:** GEOLOGICAL SOCIETY PUBLISHING HOUSE, UNIT 7, BRASSMILL  
ENTERPRISE CENTRE, BRASSMILL LANE, Bath, Avon, United Kingdom

**Pag:** pp 129-135

**PUBLICATION DATE:** 19900000 **PUBLICATION YEAR:** 1990

**LANGUAGE:** English **SUBFILE:** HRIS; IRRD (H 9101; I)

**ISBN:** 0-903317-51-6

**DATA SOURCE:** Transport and Road Research Laboratory

**ABSTRACT:** Four case histories are described where the continuous dynamic probing technique has been applied in chalk, and non-cohesive deposits. (Reading beds: sand; alluvial gravel and flood plain gravel.) The dynamic penetration equipment used was developed by Geodrive Limited and conforms with the heavy weight dynamic penetrometer (DPH), SRS 15 specified in German standards. The test method consists of driving successive 1 m length **rods** with an oversize cone tip into the ground with repeated and consistent blows provided by a 50 g **hammer** dropping through a height of 0.5 m onto an anvil. The blow count to drive the cone and **rods** through successive 100 mm intervals is recorded as the dynamic penetration resistance DPN 100 value. The number of blows to drive 3 successive 100 mm intervals can be considered as a DPN 300 value. The results are correlated with adjacent conventional **boreholes** for which standard penetration test (SPT) data have been obtained. The applications of this technique are discussed and reviewed, and consideration is given to the degrees of consistency and inconsistency in the results obtained, particularly the correlation with SPT. For the **covering** abstract of the conference see IRRD 832042.

17/7/20 (Item 20 from file: 94)

DIALOG(R)File 94:JICST-EPlus

(c)2006 Japan Science and Tech Corp(JST). All rts. reserv.

02284419 JICST ACCESSION NUMBER: 95A0107911 FILE SEGMENT: JICST-E  
**Performance and Capacity of Ground Anchor with Large-Diameter Straight  
Shaft .**

NOJIRI AKEMI (1); SASAO HIKARU (1); KINOSHITA FUMIO (1); MOCHIDA SATORU  
(1); HIRAI JUN'ICHI (1); NISHI KENJI (1); TAKATSU KAKUYUKI (1)  
(1) Kajima Inst. of Constr. Technol.

Kajima Gijutsu Kenkyujo Nenpo(Annual Report. Kajima Technical Research  
Institute, Kajima Corporation), 1994, VOL.42, PAGE.65-70, FIG.13,  
TBL.2, REF.3

JOURNAL NUMBER: F0127ABA ISSN NO: 0918-015X

UNIVERSAL DECIMAL CLASSIFICATION: 624.159.2/.4

LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan

DOCUMENT TYPE: Journal

ARTICLE TYPE: Original paper

MEDIA TYPE: Printed Publication

ABSTRACT: An experiment on a new ground anchor 32 centimeters in diameter  
was conducted for the purposes of confirming construction performance  
without a casing in a sandy gravel layer and examining the  
load-carrying mechanism through a grouted anchorage in the presence of  
a pull-out load. A percussive and rotary drilling system using a  
down-the-hole hammer was adopted to break the gravel and discharge it  
from the borehole . After construction of the anchor, the grouted  
anchorage was dug out from the ground and the shape and dimension of  
the cross section, the arrangement of PC strands and the strength of  
the grout filled the anchorage were investigated. The borehole in the  
sandy gravel layer was 32 to 41 centimeters in diameter as compared  
with the design diameter of 32 centimeters, thus borehole collapse  
did not occur. The protective covering with grout over a steel  
ribbed sheath which covered the bonded length of strands was not less  
than 5.5 centimeters thick, so the sheath was set in the center of  
grouted anchorage. The compressive strength of the grout was greater  
than the required strength. The unit ultimate friction strength of the  
anchorage was 14.4 kgf/cm<sup>2</sup>. It was clarified by anchor load testing  
that maximum strain of the grout occurred at the border between the  
bonded and unbonded strands (author abst.)

17/7/22 (Item 22 from file: 94)

DIALOG(R)File 94:JICST-EPlus

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02368147 JICST ACCESSION NUMBER: 95A0618243 FILE SEGMENT: JICST-E  
**Transmission and Dissipation of Stress Wave at a Sleeve of Percussive  
Rock Drill - Effects of Wave Length and Rod Diameter.**

OKUBO SEISUKE (1); FUKUI KATSUNORI (1); OTA AKINORI (2)

(1) Univ. of Tokyo, Fac. of Eng.; (2) Furukawa Co., Ltd.

Shigen to Sozai(Journal of the Mining and Materials Processing Institute of  
Japan), 1995, VOL.111,NO.5, PAGE.301-308, FIG.13, TBL.3, REF.12

JOURNAL NUMBER: F0463ABH ISSN NO: 0916-1740

UNIVERSAL DECIMAL CLASSIFICATION: 622.23

LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan

DOCUMENT TYPE: Journal

ARTICLE TYPE: Original paper

MEDIA TYPE: Printed Publication

ABSTRACT: Transmission and dissipation of stress wave at a percussive-drill

**rod** -joint of the coupling **sleeve** type are discussed with special attention to the effects of wave length and **rod** diameter. At first, a simple model proposed by Okubo et al, which consists of two **rods** and a spring, is analytically examined. It is found that dissipation of stress wave at a model **sleeve** depends on non-dimensional parameter  $t_1/.TAU.$ : larger dissipation for smaller value of  $t_1/.TAU.$   $t_1$  and  $.TAU.=Z/2k$  are wave length and retardation time, respectively, and  $Z$  is characteristic impedance of **rod**. Experiments are carried out with five combinations of **rod** and **sleeve** ranging from 32 to 51mm nominal diameters. Also, five kinds of **hammer** are used to impact **rod** end and generate elastic wave. The experimental results show that dissipation increases with **rod** diameter or  $Z$ , and decreases with **hammer** weight or  $t_1$ . It is found that fairly well agreement can be obtained between theoretical and experimental results. Also, dissipation during drilling by a rock drill is measured. It is found that amplitude of elastic wave decreases by 2.9% per **sleeve**. This result can be also explained by the model. (author abst.)

17/7/23 (Item 23 from file: 8)  
DIALOG(R) File 8: Ei Compendex(R)  
(c) 2006 Elsevier Eng. Info. Inc. All rts. reserv.  
04384484 E.I. No: EIP96043141956  
**Title: Identification of a percussive drill rod joint from its response to stress wave loading**  
Author: Berzi, P.; Beccu, R.; Lundberg, B.  
Corporate Source: Focus-Geo-Technic Co, Budapest, Hung  
Source: International Journal of Impact Engineering v 18 n 3 Apr 1996. p 281-290  
Publication Year: 1996  
CODEN: IJIED4 ISSN: 0734-743X  
Language: English  
Document Type: JA; (Journal Article) Treatment: G; (General Review); T; (Theoretical)  
Journal Announcement: 9606W3  
Abstract: In percussive drilling of rock, elastic stress waves are generated in a drill string through repeated axial impacts by the **hammer** of a rock drill. For **holes** deeper than a few meters, several drill **rods** are commonly joined by means of **cylindrical** coupling **sleeves** with internal threads which connect drill **rods** with external threads at their ends. Each coupling **sleeve** (CS) joint serves to transfer stress wave energy from one drill **rod** to the next with minimum loss of energy due to reflection and dissipation. This paper deals with the development of an identification procedure for the nonlinear dissipative spring mass (NDSM) model of a CS joint developed by Lundberg et al. Stiffness, friction and mass parameters were determined by minimizing the difference between simulated and measured responses of the joint, in reflection or transmission, to the same incident stress wave loading. Similar results were obtained as with an existing mixed static and dynamic identification procedure, but with considerably less expenditure of equipment and time. The most reliable results and the smallest deviation between simulated and measured responses were achieved in transmission. (Author abstract) 7 Refs.

17/7/29 (Item 29 from file: 8)  
DIALOG(R) File 8: Ei Compendex(R)

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05949410 E.I. No: EIP01496751213

**Title: Martian polar expeditions: Problems and solutions**

Author: Cockell, C.S.

Corporate Source: British Antarctic Survey High Cross, Cambridge CB3 0ET,  
United Kingdom

Source: Acta Astronautica v 49 n 12 December 2001. p 693-706

Publication Year: 2001

CODEN: AASTCF ISSN: 0094-5765

Language: English

Document Type: JA; (Journal Article) Treatment: T; (Theoretical)

Journal Announcement: 0112W2

Abstract: The Martian polar ice **caps** are regions of substantial scientific interest, being the most dynamic regions of Mars. They are volatile sinks and thus closely linked to Martian climatic conditions. Because of their scale and the precedent set by the past history of polar exploration on Earth, it is likely that an age of polar exploration will emerge on the surface of Mars after the establishment of a capable support structure at lower latitudes. Expeditions might be launched either from a lower latitude base camp or from a human-tended polar base. Based on previously presented expeditionary routes to the Martian **poles**, in this paper a "spiral in-spiral out" unsupported transpolar assault on the Martian north geographical **pole** is used as a Reference expedition to propose new types of equipment for the human polar exploration of Mars. Martian polar "ball" tents and "hover" modifications to the Nansen **sledge** for sledging on CO<sub>2</sub>-containing water ice substrates under low atmospheric pressures are suggested as elements for the success of these endeavours. Other challenges faced by these expeditions are quantitatively and qualitatively addressed. copy 2001 Elsevier Science Ltd. All rights reserved. 42 Refs.

27/7/1 (Item 1 from file: 8)

DIALOG(R)File 8: Ei Compendex(R)

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01030420 E.I. Monthly No: EI8107056318 E.I. Yearly No: EI81030055

**Title: HOW TO PROTECT MECHANICAL EQUIPMENT AND MOTORS.**

Author: Kraus, Milton N.

Source: Chemical Engineering (New York) v 87 n 25 Dec 15 1980 p 59-68

Publication Year: 1980

CODEN: CHEEA3 ISSN: 0009-2460

Language: ENGLISH

Journal Announcement: 8107

Abstract: Mechanical equipment driven by a prime mover may be **damaged** by shock loads, overloads or jamming. **Preventing** such **damage** may be accomplished by simply disconnecting the equipment from its **driver** by using a torque limiter or clutch. The devices may be categorized by their primary function into two groups. The first group is called torque limiters -- even though some designs may resemble a clutch. These devices may be driven by any type of motor, and are usually mounted directly on the equipment **driveshaft**, where the driving torque is maximum. The second group is called slip-clutch couplings, but these may have other names that reflect the manner in which the input and output members are coupled. These devices are usually mounted on the motor **shaft**, where speed is highest, because they have slip characteristics that permit the motor to come up to speed rapidly. The guidelines in this article enable the selection of the



appropriate device from the many available to **protect** the equipment and **drivers** . 4 refs.

27/7/2 (Item 1 from file: 95)

DIALOG(R) File 95:TEME-Technology & Management

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00634728 M92100852527

**Strategy for crack avoidance during metal-forming, illustrated by the case of hammer forging**

(Strategien der Rissvermeidung waehrend des Umformens von Metallen, erlaeutert am Beispiel des Freiformschmiedens)

Kopp, R; Zitz, U

Univ. of Technol RWTH Aachen, D

Journal of Materials Processing Technology, v34, n1-4, pp31-39, 1992

Document type: journal article Language: English

Record type: Abstract

ISSN: 0924-0136

ABSTRACT:

Durchfuehrung von Stauchtests bis zur Brucheinleitung mit zylindrischen Proben, akustische Emissionsbestimmung der Risseinleitung und Messung der Probenhoehe zu diesem Zeitpunkt als Modellexperiment zur Bestimmung des Rissverhaltens beim Freiformschmieden von Aluminiumlegierungen. Finite-Elemente-Simulation des Zylinderstauchtests mit Hilfe des FEM-Programms **CAPS** -FINEL des Instituts fuer Bildsame Formgebung der RWTH Aachen zur Verfolgung der Umformvorgaenge im Risseinleitungsbereich, Verteilung der aequivalenten Dehnung und tangentialen Spannung ueber den Probenquerschnitt bei unterschiedlichen Verhaeltnissen vom Durchmesser zur Hoehe und spezifischen Hoehenabnahmen, Ermittlung eines ursaechlichen Zusammenhangs zwischen Risseinleitung und tangentialer Spannung beziehungsweise der maximalen spezifischen Hauptspannung. Uebertragbarkeit der Spannungsdehnungskurven aus Laborstauchversuchen auf andere Umformverfahren. Finite-Elemente-Simulation des Freiformschmiedens zur Untersuchung der Parameter Hoehenabnahme, Geometrie und Eindruckverhaeltnis des Werkzeugs mit Hilfe des FEM-Programms ABAQUS und des Vergleichs des Umformverlaufes zwischen Stauchversuch und Freiformschmiedeversuch. Ermittlung einer spezifischen Hoehenabnahme mit garantierter Rissfreiheit von 4,4 %, Moeglichkeit der rissfreien Umformung bei Hoehenabnahmen bis 8,8 % durch hydrostatisch druckbedingtes Schliessen von Werkstoffehlern (Poren, Seigerung) zu Beginn des Schmiedens und durch optimierte Werkzeuggeometrie (trichterartig geformte Schmiedewerkzeuge). Einsatz der Simulation zur Umformplanung grosser Bauteile (Turbinenwellen, Rotoren) aus schwer umformbaren Werkstoffen (hoch stickstoffhaltiger Stahl) in kleinen Losgroessen. (Vorgetragen auf der 4th International Conference on Metal Forming, Krakow, PL, 20. bis 24. Sep. 1992). (Pfeiffer)

File 8: Ei Compendex(R) 1970-2006/Mar W2  
(c) 2006 Elsevier Eng. Info. Inc.  
Set Items Description  
S1 1 (DRIVER OR HAMMER) () (CAP OR CAPS)

1/9/1

DIALOG(R) File 8: Ei Compendex(R)  
(c) 2006 Elsevier Eng. Info. Inc. All rts. reserv.  
00174258 E.I. Monthly No: EI71X162597

Title: Pile- driving formulas.

Author: MOSLEY, E. T.; RAAMOT, T.

Source: Highway Research Record n 333, 1970 p 23-32

Publication Year: 1970

CODEN: HIRRA

Language: ENGLISH

Journal Announcement: 71X1

Abstract: The basis for the fundamental dynamic pile- driving formulas is presented. The modifications to account for energy losses are described. Some of the pile- driving formulas are discussed with emphasis on their inherent assumptions. A solution is described that is based on the motions experienced by all parts of the **hammer - cap** block- pile system after hammer impact occurs. The assumptions on which this wave equation on solution is based are discussed.

Descriptors: \*PILES--\*Driving; PILE DRIVERS

Classification Codes:

405 (Construction Equipment & Methods)

40 (CIVIL ENGINEERING)

File 9:Business & Industry(R) Jul/1994-2006/Mar 23  
(c) 2006 The Gale Group  
File 15:ABI/Inform(R) 1971-2006/Mar 27  
(c) 2006 ProQuest Info&Learning  
File 16:Gale Group PROMT(R) 1990-2006/Mar 27  
(c) 2006 The Gale Group  
File 160:Gale Group PROMT(R) 1972-1989  
(c) 1999 The Gale Group  
File 148:Gale Group Trade & Industry DB 1976-2006/Mar 24  
(c)2006 The Gale Group  
File 553:Wilson Bus. Abs. 1982-2006/Mar  
(c) 2006 The HW Wilson Co  
File 621:Gale Group New Prod.Annou.(R) 1985-2006/Mar 24  
(c) 2006 The Gale Group  
File 624:McGraw-Hill Publications 1985-2006/Mar 24  
(c) 2006 McGraw-Hill Co. Inc  
File 635:Business Dateline(R) 1985-2006/Mar 25  
(c) 2006 ProQuest Info&Learning  
File 636:Gale Group Newsletter DB(TM) 1987-2006/Mar 24  
(c) 2006 The Gale Group  
File 696:DIALOG Telecom. Newsletters 1995-2006/Mar 27  
(c) 2006 Dialog

Set	Items	Description
S1	873042	DRIVER? ? OR HAMMER? ? OR MALLET? ? OR MAUL? ? OR SLEDGEHAMMER? ? OR SLEDGE OR SLEDGES OR PILEDRIIVER? ? OR STRIKER? ?
S2	1744022	ROD OR RODS OR BOLT OR BOLTS OR POLE OR POLES OR SPIKE OR SPIKES OR STAKE OR STAKES OR SHAFT? ? OR NAIL? ?
S3	5742407	CAP OR CAPS OR SLEEVE OR SLEEVES OR COVER OR COVERS OR COVERING? ? OR PROTECT??? OR JACKET? ?
S4	2916216	BORE OR BORES OR BOREHOLE? ? OR CAVITY OR CAVITIES OR CHAMBER? ? OR CHAMBRE? ? OR SPACE OR SPACES OR SOCKET? ?
S5	2967306	TUBE OR TUBES OR TUBING OR TUBULAR OR TUBELIKE OR CYLIND? - OR PIPE OR PIPES OR CONDUIT? ? OR CHANNEL? ?
S6	828	S1(S)S2(S)S3
S7	95	S6(S)S4
S8	22	S7(S)S5
S9	21	RD (unique items)
S10	4	S9/2005:2006
S11	17	S9 NOT S10
S12	17	Sort S11/ALL/PD,A
S13	0	S1/TI AND S2/TI AND S3/TI
S14	619	S1/TI AND S3/TI
S15	1	S6 AND S14 [too recent]
S16	52	S2 AND S14
S17	51	S16 NOT (S8 OR S15)
S18	34	RD (unique items)
S19	3	S18/2005
S20	0	S18/2006
S21	10	S18/2004
S22	10	Sort S21/ALL/PD,A [too recent]
S23	21	S18 NOT S19:S21
S24	21	Sort S23/ALL/PD,A [not relevant]

12/3,K/3 (Item 3 from file: 148)  
DIALOG(R)File 148:Gale Group Trade & Industry DB  
(c)2006 The Gale Group. All rts. reserv.

04608510      SUPPLIER NUMBER: 09148815      (USE FORMAT 7 OR 9 FOR FULL TEXT)

**Installing and removing bearings. (Power Transmission)**

Jendzurski, Thomas

Plant Engineering, v44, n12, p62(3)

June 21, 1990

ISSN: 0032-082X      LANGUAGE: ENGLISH      RECORD TYPE: FULLTEXT

WORD COUNT: 1905      LINE COUNT: 00150

...      dented or brinelled or the cage is **damaged**. The result is a noisy bearing.

Straight **bore** bearings are mounted with a **hammer** and an **impact sleeve** by using a makeshift **tube** or **pipe** to impact the bearing. The tool's inner diameter must be large enough to fit over the **shaft**, and the outer diameter must not exceed the diameter of the bearing inner ring. The **pipe**'s OD should not come in contact with the rolling elements, cage, or seal. Make sure the **pipe** face is clean, smooth, and evenly cut.

When using a **hammer**, apply force uniformly along...

# FOREIGN AND INTERNATIONAL PATENTS

File 350:Derwent WPIX 1963-2006/UD,UM &UP=200620

(c) 2006 Thomson Derwent

File 347:JAPIO Nov 1976-2005/Nov(Updated 060302)

(c) 2006 JPO & JAPIO

File 344:Chinese Patents Abs Jan 1985-2006/Jan

(c) 2006 European Patent Office

Set Items Description

S1	262302	DRIVER? ? OR HAMMER? ? OR MALLET? ? OR MAUL? ? OR SLEDGEHAMMER? ? OR SLEDGE OR SLEDGES OR PILEDRIIVER? ? OR STRIKER? ?
S2	1882183	ROD OR RODS OR BOLT OR BOLTS OR POLE OR POLES OR SPIKE OR SPIKES OR STAKE OR STAKES OR SHAFT? ? OR NAIL? ?
S3	2153085	CAP OR CAPS OR SLEEVE OR SLEEVES OR COVER OR COVERS OR COVERING? ? OR PROTECT??? OR JACKET? ?
S4	2316457	BORE OR BORES OR BOREHOLE? ? OR CAVITY OR CAVITIES OR CHAMBER? ? OR CHAMBRE? ? OR SPACE OR SPACES OR SOCKET? ?
S5	3357709	TUBE OR TUBES OR TUBING OR TUBULAR OR TUBELIKE OR CYLIND? - OR PIPE OR PIPES OR CONDUIT? ? OR CHANNEL? ?
S6	46980	(DRIVING OR STRIKING) () (DEVICE? ? OR APPARTUS? OR INSTRUMENT? ? OR TOOL? ?)
S7	6393	(S1 OR S6) AND S2 AND S3
S8	649	S4(S)S5 AND S7
S9	163291	(PREVENT? OR PROTECT?) (3N) (DAMAG??? OR MUSHROOM??? OR DEFORM? OR FRAY??? OR SPLAY???)
S10	13819	IC=(B25D-009? OR E02D-007? OR E21C-031? OR B27F-007? OR E0-2D-011?)
S11	7	S8 AND S9
S12	67	S8 AND S10
S13	1	S11 AND S12
S14	6	S11 NOT S13
S15	63	S4/TI AND S5/TI AND S7/TI
S16	3385	S1/TI AND S3/TI
S17	90	S8 AND S16
S18	15	S10 AND S17
S19	14	S18 NOT S11
S20	296	(S1 OR S6) (S) S2 (S) S3 (S) S4 (S) S5
S21	0	S10 AND S 20
S22	25	S10 AND S20
S23	16	S22 NOT (S11 OR S18)
S24	8	GROUND??? ()HAMMER? ?
S25	2	S7 AND S24
S26	2	S25 NOT (S11 OR S18 OR S22)
S27	6	S24 NOT (S25 OR S11 OR S18 OR S22)

14/34/1 (Item 1 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2006 Thomson Derwent. All rts. reserv.

007674227

WPI Acc No: 1988-308159/198844

Long-term anchorage sleeve embedded in concrete - is of silicated material and hammer head bolt is rotated inside to lock into groove

Patent Assignee: BAUAKAD DDR WOHNUNG (DEUB )

Inventor: DAHMS K; PEHNEIT H

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
DD 257852	A	19880629	DD 300271	A	19870227	198844 B

Priority Applications (No Type Date): DD 300271 A 19870227  
Abstract (Basic): DD 257852 A

The **sleeve** for securing frameworks, working platforms, cables or hoists to a building and remaining securely anchored for the whole of the life of the building is embedded in concrete and decives longitudinal and cross forces. It does not use threads and does not cause cracks in the concrete, and is **protected** from dirt and **damage**.

It is made of a silicated cast material in a **cylindrical** shape and can be closed at both ends by **covers** . On its outside are raised or sunken parts. It interior forms an axial **space** into which is fitted a threaded **bolt** with a **hammer** head. The interior is wider at the ends so that the **bolt** head can be rotated. After rotation through 90 deg. it is retained in a groove.

Derwent Class: Q43

International Patent Class (Additional): E04B-001/41

14/34/2 (Item 2 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
(c) 2006 Thomson Derwent. All rts. reserv.  
003360680  
WPI Acc No: 1982-L8705E/198236

**Tunnel bore cutter - has symmetrical to rotor cutters and flow distributing sleeve fixed on drive shaft**

Patent Assignee: KARAG POLY (KAPO )  
Inventor: KRAVCHENKO V A; KUZNETSOV B S; LAZUTKIN A G  
Number of Countries: 001 Number of Patents: 001  
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
SU 877033	B	19811105				198236 B

Priority Applications (No Type Date): SU 2827842 A 19791011

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
SU 877033	B	3		

Abstract (Basic): SU 877033 B

Tunnel **bore** cutter has hydraulic drive located out of range of the broken soil lumps to **prevent** it from **damage** . In addition, its rotor is dynamically balanced to increase its output.

The cutters (3) are located symmetrically to the rotors centre and the distributor is made in the form of a **sleeve** (8) fixed to the **shaft** and made with the radial windows (9). The stator (10) is mounted on the **sleeve** and its windows connected to the oil pressure and return lines (13,14). The cutters (3) **strikers** (4,5) are connected in pairs by **channels** to the radial openings of the **sleeve** . The pressure and the return lines windows are alternated around the stator and during the **bores** operation are alternatively connected to the radial windows. Bul.40/30.10.81 (3pp Dwg.No.1/3)

Derwent Class: Q49

International Patent Class (Additional): E21D-009/10

14/34/3 (Item 3 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
(c) 2006 Thomson Derwent. All rts. reserv.

001259097

WPI Acc No: 1975-E2912W/197516

**Hydraulic brake tube seat replacement tool - has slide hammer acting on shaft which engages seat with mandrel**

Patent Assignee: O W SIMPSON (SIMP-I)

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No.	Kind	Date	Applicat No	Kind	Date	Week
US 3875644	A	19750408				197516 B

Priority Applications (No Type Date): US 73381323 A 19730720

Abstract (Basic): US 3875644 A

An elongated **shaft** capable of having one end inserted into the inlet or outlet port of a hydraulic brake master **cylinder** is provided with a coaxial **socket** which removably receives a **tube seat** supporting mandrel. A counterbore, coaxial with the **socket**, nests one end portion of a **tube seat** and **prevents damage** thereto. The other end of the **shaft** is provided with a stop block and a stop pin is transversely secured to the **shaft** intermediate its ends. A **sleeve** slidably surrounds the **shaft** between the stop block and stop pin for forcing the **shaft** toward and away from a **tube seat** disposed within the brake **cylinder** port in response to manual to and fro movement of the **sleeve**.

Derwent Class: P62

International Patent Class (Additional): B25B-027/02

14/7/4 (Item 1 from file: 347)

DIALOG(R) File 347:JAPIO

(c) 2006 JPO & JAPIO. All rts. reserv.

06034272 \*\*Image available\*\*

**PIPE MAIN PILING METHOD**

PUB. NO.: 10-317372 [JP 10317372 A]

PUBLISHED: December 02, 1998 (19981202)

INVENTOR(s): NAKAMURA TOSHIYA

APPLICANT(s): NAKAMURA TOSHIYA [000000] (An Individual), JP (Japan)

APPL. NO.: 09-170908 [JP 97170908]

FILED: May 23, 1997 (19970523)

**ABSTRACT**

**PROBLEM TO BE SOLVED:** To simply erect a stable and firm foundation for the foundation of a small or medium-scale building by fitting a tip **cap** to the lower section of a steel **pipe** used for a pile, fitting a **deformation preventing cap** to the upper section, driving the steel **pipe** until the tip **cap** reaches a bearing stratum, and molding a spherical concrete at the tip section after the driving is completed to form the support pile.

**SOLUTION:** A tip **cap** 2 is fitted to the lower section of a steel **pipe** 1 used for a pile, a **deformation preventing cap** 3 is fitted to the upper section, and the steel **pipe** 1 is driven by a driving machine or a large **hammer** until the tip **cap** 2 reaches a bearing stratum. The **deformation preventing cap** 3 is removed, the tip **cap** 2 is driven by an iron rod 4 and separated from the tip of the steel **pipe** 1 to form a **cavity**, concrete is pressure-inserted into the **cavity**, and the **cavity** is expanded to mold tip spherical concrete 5. The area of a pile bottom section is expanded, a strong bearing pile with increased bearing force can be formed, it connects the foundation bottom section of a low layer building and the bearing stratum, and it can **prevent** the settlement or inclination of the foundation by an earthquake.

19/26, TI/3 (Item 3 from file: 350)  
DIALOG(R) File 350: Derwent WPIX  
(c) 2006 Thomson Derwent. All rts. reserv.  
011353842

WPI Acc No: 1997-331749/199730

Alignment and shock absorbing device for removing bolt or rod from fixture - includes alignment sleeve and tapered coil spring which aligns driving bit of air hammer to bolt to be driven from the fixture and absorbs shock of impact during driving operation

19/26, TI/4 (Item 4 from file: 350)  
DIALOG(R) File 350: Derwent WPIX  
(c) 2006 Thomson Derwent. All rts. reserv.  
009549723

WPI Acc No: 1993-243273/199330

Hydraulic ram for operating pile hammer - comprises cylinder and piston with rod connected to hammer weight and sliding sleeve valve within cylinder head controlling fluid flow

19/26, TI/5 (Item 5 from file: 350)  
DIALOG(R) File 350: Derwent WPIX  
(c) 2006 Thomson Derwent. All rts. reserv.  
008043067

WPI Acc No: 1989-308179/198942

Pile driving diesel- hammer - has striking piston suspended on movable working cylinder by tension spring set in sleeve featuring spiral groove

19/26, TI/8 (Item 8 from file: 350)  
DIALOG(R) File 350: Derwent WPIX  
(c) 2006 Thomson Derwent. All rts. reserv.  
003571643

WPI Acc No: 1983-B9834K/198306

Diesel hammer with liq. cooling - has pipes joining water jacket to radiator are made of resilient material and enclosed in water jacket

19/26, TI/10 (Item 10 from file: 350)  
DIALOG(R) File 350: Derwent WPIX  
(c) 2006 Thomson Derwent. All rts. reserv.  
002294781

WPI Acc No: 1980-A1213C/198001

Jack hammer for mining and construction - has valves in combustion chamber cap with valve cocking mechanisms and pivoted sprung lever ignition mechanism

19/26, TI/12 (Item 12 from file: 350)  
DIALOG(R) File 350: Derwent WPIX  
(c) 2006 Thomson Derwent. All rts. reserv.  
001924671

WPI Acc No: 1978-F3927A/197828

Starter for diesel engine operated hammer - has rope lifted push-rod passing through upper flange of lower cylinder and guide sleeve sealed against air entry



19/34/1 (Item 1 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
(c) 2006 Thomson Derwent. All rts. reserv.  
014143013 \*\*Image available\*\*  
WPI Acc No: 2001-627224/200173

**Hydraulic hammer has housing for shaft of bit which contains upper and lower tubular sleeves, each sleeve consisting of rigid outer and inner sleeve and annular space between sleeves being filled with elastomer**

Patent Assignee: MOERS W (MOER-I)

Inventor: MOERS W

Number of Countries: 0

Patent Family:

Patent No Kind D  
DE 10041890 C1 200

Priority Applications

Patent Details:

Patent No Kind Lan Pg  
DE 10041890 C1 5

Abstract (Basic): DE 1

NOVELTY - Hydr  
of the bit which c  
Each sleeve cons  
the housing and a

shaft . An annular space between the two sleeves is filled with an elastomer (9).

USE - Hydraulic hammer .

ADVANTAGE - The housing and bit can be used for a long period without lubrication, noise is reduced and no ball bearing is required.

DESCRIPTION OF DRAWING(S) - The drawing shows a cross-section of the lower section of the hammer .

Housing (1)

Shaft of bit (2)

Tubular sleeves (5, 6)

Rigid outer sleeve (7)

Rigid inner sleeve (8)

Elastomer (9)

pp; 5 DwgNo 1/2

Technology Focus:

TECHNOLOGY FOCUS - POLYMERS - The elastomer is a polyurethane.

Derwent Class: A88; P62

International Patent Class (Main): B25D-017/08

International Patent Class (Additional): B25D-009/00 ; B25D-017/11

19/34/2 (Item 2 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
(c) 2006 Thomson Derwent. All rts. reserv.  
012028119 \*\*Image available\*\*  
WPI Acc No: 1998-445029/199838

**Hydraulic hammer for breaking rocks, ferroconcrete etc. - has distributor in axial counterbore in body between working and return stroke chambers, distributor being in form of sleeve which embraces piston- striker**

Patent Assignee: AS SIBE HYDRODYNAMICS INST (ASIH-R)

Number of Countries: 001 Number of Patents: 001

nts: 001

Kind Date Week  
A 20000825 200173 B  
1041890 A 20000825

ing Notes

a housing (1) for the shaft (2)  
lower tubular sleeves (5, 6).  
ter sleeve (7) which fits into  
(8) which can be attached to the

USE - For mailing wooden packing boxes. Bul.44/30.11.85 (2pp

Dwg.No.1/3  
Derwent Class: P63  
International Patent Class (Additional): **B27F-007/02**

**19/34/7 (Item 7 from file: 350)**  
DIALOG(R)File 350:Derwent WPIX  
(c) 2006 Thomson Derwent. All rts. reserv.  
003585598  
WPI Acc No: 1983-D3795K/198310

**Hydraulic piling hammer - has striker containing sleeve  
spring-loaded from body on piston side**

Patent Assignee: BUILDING AUTOM MECH (BUIL-R); MILITARY ENG INST (MILI-R)  
Inventor: BINDUL E V; BOBYLEL L M; OKUNEV G N  
Number of Countries: 001 Number of Patents: 001  
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
SU 924250	B	19820430				198310 B

Priority Applications (No Type Date): SU 2875870 A 19800128

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
SU 924250	B	3		

Abstract (Basic): SU 924250 B

The proposal refers to a Parent Cert. and the hydraulic **hammer** for driving the foundation piles has **striker sleeve** added which is spring-loaded from the body to improve the **hammer** performance. Its body (1) contains an accumulator (2) and a **cylinder** (3) with a **striker** (4). The latter is enclosed in a flow distributing **sleeve** (5), spring-loaded (8,9) from the body and made with the windows (6,7). The body has corresponding **channels** and windows (10-13).

The fluid fills the accumulator and the **cylinder** piston **space** is opened by the spring-loaded **sleeve**. The body (1) is lifted and the **striker** moved down, relative to the **sleeve** and produces a strike. The windows (6) and (12) are closed, the pressure in the **rod space** rapidly increased and the differential pressure moves the **sleeve** up. The **striker** is reversed and the windows (13,7) closed. The piston **space** pressure is rapidly increased and the **sleeve** moved down. The piston **space** is filled (10,11) from the accumulator and the **rod space** drained (14). The body is moved up whilst the **striker** hits the pile. Bul.16/30.4.82

(3pp Dwg.No.1/1

Derwent Class: Q42  
International Patent Class (Additional): **E02D-007/10**

**19/34/9 (Item 9 from file: 350)**  
DIALOG(R)File 350:Derwent WPIX  
(c) 2006 Thomson Derwent. All rts. reserv.  
003088397  
WPI Acc No: 1981-J8442D/198138

**Pneumatic hammer unit - has striker -to- sleeve and nut-to-body  
connection made by means of shock absorbers**

Patent Assignee: AS SIBE MINING INST (ASIM )  
Inventor: BOGINSKII V P; GILETA V P; SMOLYANITS B N  
Number of Countries: 001 Number of Patents: 001  
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
SU 791846	B	19801231				198138 B

Priority Applications (No Type Date): SU 2684237 A 19781010

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
SU 791846	B	3		

Abstract (Basic): SU 791846 B

The pneumatic **hammer** design reduces air consumption and prevents the **striker** from oscillating.

Body (1) contains a **striker** (2) which hits the front **socket** (5) separated from it by an elastic insert (6). The **tube** (7) is connected to the **socket** and to the shock absorber (10). Additional shock absorber (11) is located in the centre of the **striker**. The **channels** (14) admit air to the idle movement **chamber** (15). The working **chamber** (16) is formed by the **striker** end. The compressed air is fed through the connection (20-22) made in the nut (3). The **socket** (5) secures the drive **rod** to the **hammer**. The air fills both **chambers** (15,16).

Due to the difference in the **striker** diameters, it is moved back. When the **channels** (14) are closed (12) the air supply to the **chamber** is stopped (15) and the air is vented through the openings (19). The pressure in the **chamber** (16) drives the **striker** forward to hit the **socket**. Bul.48/30.12.80. (3pp Dwg.No.1)

Derwent Class: Q42; Q49

International Patent Class (Additional): E02D-007/02 ; E21B-007/26

19/34/11 (Item 11 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2006 Thomson Derwent. All rts. reserv.  
002154282

WPI Acc No: 1979-H4224B/197935

**Hydraulic impact demolition hammer - has piston on impact shaft with sleeve valve fitting on shaft and sealing against piston, and air spring absorbing shaft energy on upstroke**

Patent Assignee: JUSTUS E J (JUST-I)

Inventor: JUSTUS E J

Number of Countries:

Patent Family:

Patent No	Kind	No	Kind	Date	Week
GB 2014651	A	1			197935 B
ZA 7900479	A	1			198035
US 4231434	A	1			198047
CA 1092941	A	1			198107
DE 2933640	A	1			198112
GB 2014651	B	1			198216
DE 2933640	C	1			198521
IT 1111126	B	1			198719

Priority Application

US 78879216 A 19780221

Abstract (Basic): GB 2014651 A

The demolition **hammer** has an impact **shaft** (22) on which is a piston (32) which fits a **cylinder** (17). A reciprocating **sleeve** valve (23) fits around the impact **shaft** within the **cylinder**. The **sleeve** valve incorporates a pair of peripheral seals between which a **cavity** (C) is formed, one end of the **sleeve** valve sealing against the piston element.

A pressure-relief valve (20) is situated between the **cavity** (C) and another annular **cavity** (D) so as to ensure the pressure in the former is greater, providing a sealing force between the **sleeve** valve and the piston. An air spring (14) absorbs energy from the impact **shaft** during it's upward stroke.

Derwent Class: P52; P62; Q49; Q51; Q55

International Patent Class (Additional): B21J-015/20; B25D-001/02;  
**B25D-009/02** ; E21C-037/24; F01B-007/18; F03C-001/14

19/34/13 (Item 13 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2006 Thomson Derwent. All rts. reserv.

001742125

WPI Acc No: 1977-H8625Y/197738

**Hydraulic foundation pile hammer - has cylinder's relief groove operated by rod projection and rod sleeve , to control fluid flow automatically, during reverse stroke**

Patent Assignee: STROIMASH DES BUR (STRO-R)

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
SU 534549	A	19761221				197738 B

Priority Applications (No Type Date): SU 1954626 A 19730809

Abstract (Basic): SU 534549 A

A **hammer** for foundation piles consists of a **cylinder** (1) with a piston and **rod** (2), (3), a control box (4) with distributor (5) and spring (6). The **rods sleeve** (9) closes **channel** (8) when piston (2) is at the bottom. The **cylinder's** groove (10) is connected. to the drain line (11), and the **hammer** is operated by a power pack which includes pump (12), safety valve (13), tank (14) and pressure piping (15).

Initially the **striker** with **cylinder** (1) is at the bottom, piston (2) at the top, and **rod** (3) rests on the pile's head. Controller (5) is held by the spring at the top. The **rod 's** projection (7) closes groove (10) and the relief to drain. Fluid is pumped through a line (15) and forces controller (5) to overcome spring pressure, to close relief line (11). Fluid pressure lifts the **striker** , together with **cylinder** as soon as the top and bottom **cylinder spaces** are connected by **channel** (8).

When the **cylinder** reaches its top limit piston (2) is at the bottom and **sleeve** (9) closes the **rod 's channel** (8), separating top and bottom **cylinders spaces** . The pressure in the bottom **space** rapidly increases and lifts the controller (5). The top **cylinder space** and line (15) are connected to drain (11) through control box (4). As a result , the **striker** together with **cylinder** fall down and strike the pile's head. At the end of stroke, the piston's projections **covers** groove (10) and closes relief line (11). The cycle is then repeated.

Derwent Class: Q42

International Patent Class (Additional): **E02D-007/10**

19/34/14 (Item 14 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2006 Thomson Derwent. All rts. reserv.

001524187

WPI Acc No: 1976-J7123X/197640

**Tool bearing in manually-controlled hammer - has protective sleeve flange secured by bearing stops eliminating friction**

Patent Assignee: DUSS F MASCHINENFAB (DUSS-N)

Number of Countries: 005 Number of Patents: 005

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
DE 2511045	A	19760923				197640 B
NL 7602457	A	19760915				197640
FR 2303646	A	19761112				197703
GB 1537893	A	19790110				197902
CH 612872	A	19790831				197938

Priority Applications (No Type Date): DE 2511045 A 19750313

Abstract (Basic): DE 2511045 A

The manually-controlled **hammer** has a tool located in a bearing (15) and displaceable axially. It is activated by means of a **striker** contained in a **cylinder**. The **striker** moves backwards and forwards as the result of rhythmic compressed air variations. A flexible material **sleeve** **protects** the tool bearing from dust and also seals tightly against the tool itself. The continual surface of the tool **shaft** (18) is encompassed by the axially displaceable contact surface (45) of the **socket** -shaped **sleeve** (22). The **sleeve** contact surface (48) working in conjunction with the tool bearing (15) is of a diameter involving virtually no friction. Stops on the tool bearing (15) secure a flange of the **sleeve** (22).

Derwent Class: P62; Q49; Q65

International Patent Class (Additional): B25D-009/00 ; B25D-011/12; B25D-017/00; E21C-003/04; F16J-015/32

23/26, TI/3 (Item 3 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2006 Thomson Derwent. All rts. reserv.

008404546

WPI Acc No: 1990-291547/199039

**Hydraulic pile-driving ram valve unit - has common control sleeve slider with inner pilot and outer main valve faces**

23/26, TI/4 (Item 4 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2006 Thomson Derwent. All rts. reserv.

004310001

WPI Acc No: 1985-136879/198523

**Pressure fluid operated percussion drilling machine - has rotation mechanism outlet channel terminating in cylinder space on opposite side of percussion piston to drilling rod**

23/26, TI/5 (Item 5 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2006 Thomson Derwent. All rts. reserv.

003902029

WPI Acc No: 1984-047573/198408

**Vertical pipe pile driving equipment - increases productivity by using hinged split striker and retained under the floating platform as pipe is passed through**

23/26, TI/6 (Item 6 from file: 350)  
DIALOG(R) File 350: Derwent WPIX  
(c) 2006 Thomson Derwent. All rts. reserv.  
003796812

WPI Acc No: 1983-793051/198342

**Hydraulic hammer - has distributor with spring-loaded piston with cavity open on one side**

23/26, TI/7 (Item 7 from file: 350)  
DIALOG(R) File 350: Derwent WPIX  
(c) 2006 Thomson Derwent. All rts. reserv.  
003553957

WPI Acc No: 1983-A2149K/198301

**Pneumatic hammer - has striker with groove which together with tail forms spent air exhaust channel**

23/26, TI/9 (Item 9 from file: 350)  
DIALOG(R) File 350: Derwent WPIX  
(c) 2006 Thomson Derwent. All rts. reserv.  
002326988

WPI Acc No: 1980-D3425C/198015

**Hydraulic piling hammer - has cylinder mounted in fluid vessel with operating chambers and controller connected through cylinder wall mounted valves**

23/26, TI/10 (Item 10 from file: 350)  
DIALOG(R) File 350: Derwent WPIX  
(c) 2006 Thomson Derwent. All rts. reserv.  
002103450

WPI Acc No: 1979-C3363B/197911

**Foundation pile bore - has spring-loaded worm shaft and gear transmission engaged with vibrator lifting rod nuts which have opposite hand thread**

23/26, TI/13 (Item 13 from file: 350)  
DIALOG(R) File 350: Derwent WPIX  
(c) 2006 Thomson Derwent. All rts. reserv.  
001466203

WPI Acc No: 1976-C9101X/197613

**Pneumatic building industry thumper - main piston's space connected to atmos, striker between pistons reduce vibrations**

23/26, TI/14 (Item 14 from file: 350)  
DIALOG(R) File 350: Derwent WPIX  
(c) 2006 Thomson Derwent. All rts. reserv.  
001274052

WPI Acc No: 1975-F7959W/197522

**Double acting pile hammer - automatically distributes fluid during pistons reverse, axial canal connects piston spaces**

23/34/1 (Item 1 from file: 350)  
DIALOG(R) File 350: Derwent WPIX  
(c) 2006 Thomson Derwent. All rts. reserv.  
015995303 \*\*Image available\*\*

WPI Acc No: 2004-153153/200415

**Air-operated percussion machine**

Patent Assignee: KOROBITSYN V M (KORO-I); RYZHOV E I (RYZH-I)

Inventor: KOROBITSYN V M; RYZHOV E I  
Number of Countries: 001 Number of Patents: 001  
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
RU 2219338	C1	20031220	RU 2002112385	A	20020507	200415 B

Priority Applications (No Type Date): RU 2002112385 A 20020507

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
RU 2219338	C1		E21C-037/24	

Abstract (Basic): RU 2219338 C1

NOVELTY - Air-operated percussion machine has **shaft** , **striker** placed in **space** of **shaft** , **chambers** of power and no-load strokes of **striker** , **tubular** valve, **cover** , **sleeve** attached to **shaft** in which **space** mechanism controlling exhaust of compressed air from **chambers** of **shaft** into atmosphere is located. This mechanism includes ring valve, seat with exhaust **holes** and mobile rests. **Shaft** of machine includes exhaust **holes** and command ducts. Air distribution mechanism is provided with additional **spaces** housing stepped control valve and check valve presenting, for instance, spring-loaded ball, circular groove in **cover** of air distribution mechanism. Part of **space** under stepped control valve communicates with **space** of handle where air distribution mechanism and **chamber** of power stroke are positioned and part of **space** above stepped control valve communicates with **chambers** of power and no-load strokes of **striker** . Ring valves of mechanism controlling exhaust are mounted for interaction with mobile rests **preventing** their angular displacement and are provided with exhaust **holes** .

USE - Mining industry, civil engineering.

ADVANTAGE - Enhanced efficiency of machine, reduced aerodynamic noise. 1 cl, 4 dwg  
pp; 0 DwgNo 1/1

Derwent Class: P62; Q49

International Patent Class (Main): E21C-037/24

International Patent Class (Additional): **B25D-009/14**

**23/34/8** (Item 8 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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003067505

WPI Acc No: 1981-G7543D/198129

**Hydraulic hammer for pile driving - has each cylinder pusher with cavity on impact side, for support rod**

Patent Assignee: CONS ROAD ENG RES (CONS-R)

Inventor: DMITREVICH Y U V; KLYUEV V G; ZOBIN A Y A

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
SU 775228	B	19801030				198129 B

Priority Applications (No Type Date): SU 2713277 A 19790115

Abstract (Basic): SU 775228 B

The hydraulic **hammer** has a **striker** (1) moving along guide **rods** (2) whose ends are joined at the top by top traverse (3) and at the bottom by bottom traverse (4). One of the **rods** (2) has a hydroaccumulator (5) and valve (6). Lower traverse (4) has a pusher (7) in a working **cylinder** with **rod** (8) and piston (9) **cavities** . In



pusher (7)'s upper part, **cavity** (10) contains support **rod** (II). Within **cavity** (10) between pusher (7) and support **rod** (II) there is a resilient element (13,14) within and under nut (12). The **rod cavity** (8) is joined to pressure line (15) and pump (16). Piston **cavity** (9) is joined by **channel** (17) through valve (6) to pressure line (14). Outlet line (18) is joined to valve (6) and tank (19). The **striker** (1) and **hammer** are supported on **cap** (20). Bul. 40/30.10.80.

Derwent Class: Q42

International Patent Class (Additional): E02D-007/10

23/7/15 (Item 1 from file: 347)

DIALOG(R) File 347:JAPIO

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04032277 \*\*Image available\*\*

**HAMMER DEVICE**

PUB. NO.: 05-023977 [JP 5023977 A]

PUBLISHED: February 02, 1993 (19930202)

INVENTOR(s): SESHIMO SATORU

APPLICANT(s): OORUEYAA KK [459455] (A Japanese Company or Corporation), JP  
(Japan)

APPL. NO.: 03-175421 [JP 91175421]

FILED: July 16, 1991 (19910716)

ABSTRACT

PURPOSE: To provide a **hammer** unit which is able to automatically punch a pin in an efficient manner.

CONSTITUTION: A piston 7, a **hammer** 9 being hit by a forward movement of this piston 7 and two springs 8, 10 pressing the piston 7 to a **cylinder** 1 and the **hammer** 9 toward a **rod cover** 3 of the **cylinder** respectively are all built in an inner part of the **cylinder** 1. In addition, in this **cylinder** 1, there are provided a first small **hole** 18, which is closed by a backward movement of the piston 7, and a second small **hole** 21 being closed by a backward movement of the **hammer** 9, respectively. Then, an air charge **hole** 4 is formed in the head **cover** 2 of the **cylinder** 1. A directional control valve 27 is built in an air charging passage 26 connected to the air charge **hole** 4. In succession, the directional control valve 27 is automatically selected by a pressure variation in a pilot passage 25 being connected to both these small **holes** 18 and 21 and interconnected to the air charging passage 26, while the piston 7 is moved in both directions by dint of supply pressure of compressed air flowing into a piston rear **chamber** 20 from the air-charge **hole** 4 and resilience of the spring 8, thereby hitting the **hammer** 9 at the forward movement.

23/7/16 (Item 2 from file: 347)

DIALOG(R) File 347:JAPIO

(c) 2006 JPO & JAPIO. All rts. reserv.

00525786 \*\*Image available\*\*

**PILE DRIVING-IN METHOD**

PUB. NO.: 55-013386 [JP 55013386 A]

PUBLISHED: January 30, 1980 (19800130)

INVENTOR(s): HIRAOKA SHIGEAKI

KONNO SHOZO

FUCHIMOTO SAKAE

YOSHINO YUICHI

APPLICANT(s): KAJIMA CORP [000137] (A Japan  
(Japan)

See  
attached  
image

poration), JP

APPL. NO.: 54-018108 [JP 7918108]  
FILED: February 19, 1979 (19790219)

ABSTRACT

PURPOSE: To enable a reliable driving-in of piles at regular intervals and with less noise, by boring by means of a digging machine at the inside of a stand **pipe** which is hooked at a pile driven in and is driven in at a given position, and by erecting a pile in the **bore**.

CONSTITUTION: A stand **pipe** 15, whose cut parts 18 are hooked at two guide rails 17 of a driven-in pile 13, is driven in by means of a vibro-**hammer** at a position **covering** a place where a pile is driven in. A boring **rod** 1 is inserted into the **pipe** 15, and a hook part 12 being along the longitudinal direction of the **rod** is hooked at a guide rail 14. Afterwards the **rod** 1 is rotated downward until it **bores** down to the depth of a support layer, and is pulled out. Then a pile 13' is erected in a **bore** 16, and the stand **pipe** 15 is removed. The pile 13' being considered to be the previous driven-in pile, the aforesaid processes are repeatedly carried out. Since boring is performed being guided by the guide rail 14, driving-in of piles for sand guards can be reliably conducted at regular intervals and also in parallel.

26/34/1 (Item 1 from file: 350)

DIALOG(R)File 350:Derwent WPIX  
(c) 2006 Thomson Derwent. All rts. reserv.  
007629061 \*\*Image available\*\*  
WPI Acc No: 1988-262993/198837

Ground **hammer** drill - has rod head catches mounted on spring plates attached to striker and opening by sleeve mounted bars

Patent Assignee: MOSC REGION COAL RE (MOCO-R)  
Inventor: BOLEINIK V S; GRIMAYUK B I; ZENYAKIN V N  
Number of Countries: 001 Number of Patents: 001  
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
SU 1377379	A	19880229	SU 4098638	A	19860811	198837 B

Priority Applications (No Type Date): SU 4098638 A 19860811

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
SU 1377379	A	3		

Abstract (Basic): SU 1377379 A

The drill case (1) contains spring loaded **striker** (2), moving stop (3), spring plates (9), catches (8) and their opener (10), **cylinder rod** (5) with **sleeve** (6) and tool (12).

**Rod** has a round head and clamps (8) are attached to plates (9) which are mounted in the **striker**. Opener (10) is located on **sleeve** (6) and stop (3) in case (1). Stop is moved axially on **rod** (5).

Fluid pressure in piston space moves **rod** (5) until its head contacts catches (8) and closed them. Fluid pressure in **rod** space pulls **rod** in together with **striker** which compresses spring (4). Catches (8) contact opener (10) and release **rod** head (7). **Striker** hits the tool.

USE/ADVANTAGE - Ground **hammer** drill has simple construction and strike control. Bul. 8/29.2.88

1/3

Derwent Class: Q49

International Patent Class (Additional): E21C-003/20

26/34/2 (Item 2 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
(c) 2006 Thomson Derwent. All rts. reserv.  
003928108  
WPI Acc No: 1984-073652/198412

Dynamic ground resistance probing device - has roller rods arranged on central column bar, and strips around roller rods to form jacket  
Patent Assignee: SCI SECT GIDROPROEKT RES INST (GIDR )  
Inventor: GOLTISOV S N; MOROZOV V B; STRAKHAL V A  
Number of Countries: 001 Number of Patents: 001  
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
SU 1020511	A	19830530	SU 3353809	A	19810907	198412 B

Priority Applications (No Type Date): SU 3353809 A 19810907  
Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
SU 1020511	A	3		

Abstract (Basic): SU 1020511 A

Cone (1) is rigidly linked to a column of rods (2) which is joined to the suspended impact equipment of a drilling penetration installation including a hammer (3), and upper (4) and lower (5) stops. Rollers (6) are mounted on the column of rods (2), and closed strips (7) pass round the rollers (6) forming a casing. The outer dimensions of this casing's transverse section should be less than the diameter of the base of the cone (1).

Cone (1) with rod (2) is positioned on the surface of the ground. Hammer (3) is raised to the upper stop (4) and cast down, causing an impact on the lower stop (5). As a result of these impacts, cone (1) with the column of rods (2) sinks into the ground, and as this happens the strips (7) roll round rollers (6) which reduces the lateral friction against the ground arising during sinking. Bul.20/30.5.83

(3pp Dwg.No.1/2

Derwent Class: Q42

International Patent Class (Additional): E02D-001/00

27/26, TI/1 (Item 1 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
(c) 2006 Thomson Derwent. All rts. reserv.  
012031054  
WPI Acc No: 1998-447964/199839

Pipe laying equipment for replacing steel pipelines with plastic, avoiding trenching - comprises adaptors pushing out and removing old line completely, whilst expanding hole for new larger diameter pipeline, avoiding disturbance to traffic, roads and buildings

27/26, TI/2 (Item 2 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
(c) 2006 Thomson Derwent. All rts. reserv.  
007628554

WPI Acc No: 1988-262486/198837  
Ground hammer rotary impact drill - has piston cup working chamber joined to striking piston idle chamber and both chambers permanently connected to pressure line

27/26, TI/5 (Item 5 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2006 Thomson Derwent. All rts. reserv.  
004160002

WPI Acc No: 1984-305541/198449

**Ground breaking hammer - has striker idle movement control space connected to gas space and throttle fitted in working movement control space channel**

27/26, TI/6 (Item 6 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2006 Thomson Derwent. All rts. reserv.  
002405745

WPI Acc No: 1980-M2220C/198051

**Ground hammer drill - has intermediate case, engaged through gears to vibrator drive, to rotate cutters at constant speed**

27/34/3 (Item 3 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2006 Thomson Derwent. All rts. reserv.  
007322621

WPI Acc No: 1987-319628/198745

**Ground hammer for geological research - has spent air distributing sleeve which together with case top part form additional expansion chamber**

Patent Assignee: AS SIBE MINING INST (ASIM )

Inventor: DANILOV B B; KOSTYLEV A D; SMOLYANITS B N

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
SU 1293329	A	19870228	SU 3966370	A	19851017	198745 B

Priority Applications (No Type Date): SU 3966370 A 19851017

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
SU 1293329	A		3		

Abstract (Basic): SU 1293329 A

**Ground hammer** case (1) includes air inlet and outlet openings (2,3) and **striker** (4) with an axial **channel** and radial openings (5). **Sleeve** (6) separates **striker** from case which is fitted with silencer (1). The latter has inclined rows of windows (8) and forms with case a noise absorbing **chamber** (9). Windows are displaced in axial direction relative to the outlet openings (3). Surface area of each row of windows (8) is increased in direction away from openings (3). Spent air distributing **sleeve** (10) with longitudinal slots (11) is mounted in case top part and forms, together with case, an expansion **chamber** (13) and with the **striker** an annular clearance whose surface is equal or greater than total surface of the open openings (5). Slots (11) are displaced relative to openings (3).

Working and idle **striker chambers** (14,15) and expansion **chamber** (16) are formed by stepped **striker** and case. When the spent air is exhausted, **chamber** (15) is gradually emptied to atmosphere which increases **striker** working stroke efficiency and the force of its impact.

USE/ADVANTAGE - **Ground hammer** noise is reduced without detrimental effect on its efficiency. Bul.8/28.2.87 (3pp Dwg.No.1/1)

Derwent Class: Q49

International Patent Class (Additional): E21C-003/24

27/34/4 (Item 4 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
(c) 2006 Thomson Derwent. All rts. reserv.  
007322620  
WPI Acc No: 1987-319627/198745

**Impact hammer for mine work - has sleeve recess and case formed control  
space connected to additional outlet of distributor**

Patent Assignee: KOLESAEV M B (KOLO-I)

Inventor: KOLESAEV M B

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
SU 1293328	A	19870228	SU 3979762	A	19851001	198745 B

Priority Applications (No Type Date): SU 3979762 A 19851001

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
SU 1293328	A	2		

Abstract (Basic): SU 1293328 A

Mining **hammer** case (1) contains **striker** (2) moved on guiding blocks (3,4) which together with **sleeve** (5) form a **chamber** (6), connected to pressure line (7) and a **chamber** (8) which is alternatively connected to line (7) and to drain line (9) through a motorised (11) distributor (10). **Sleeve** (5) has ring form recess (12) which, together with case (1), form a control space (13). Distributor (10) has additional outlet (14) which is connected to line (7) during the **striker** idle stroke and to line (9) during the latter working stroke. Space (13) is connected to outlet (14) via the lines (15).

Gas fills (7) **chambers** (6) and (8) and **striker** hits punch tail (16). Distributor (10) is switched and connects **chamber** (8) to line (9). **Striker** carries out idle stroke and space (13) is connected to line (7). Base pressure **deforms sleeve** (5) radially and clearance between **stirker** and **sleeve** is reduced. As a result, the leakage between the **chambers** (6) and (8) is also reduced.

USE/ADVANTAGE - **Ground hammer** leakage between idel and working stroke **chambers** is reduced and efficiency improved. Bul.8/28.2.87 (2pp Dwg.No.1/1)

Derwent Class: Q49

International Patent Class (Additional): E21C-003/20

## INVENTORS

File 350:Derwent WPIX 1963-2006/UD,UM &UP=200620

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File 349:PCT FULLTEXT 1979-2006/UB=20060323,UT=20060316

(c) 2006 WIPO/Univentio

File 348:EUROPEAN PATENTS 1978-2006/ 200611

(c) 2006 European Patent Office

Set	Items	Description
S1	25	AU='RIVERS P' OR AU='RIVERS P B' OR AU='RIVERS PAUL'
S2	47	AU='DIGGLE F' OR AU='DIGGLE F J'
S3	256615	DRIVER? ?
S4	2	S1:S2 AND S3
S5	20	S1 AND S2
S6	18	S5 NOT S4 [not relevant]
S7	18	IDPAT (sorted in duplicate/non-duplicate order)
S8	2305	IC=B25D-009?
S9	1	S1:S2 AND S8
S10	0	S9 NOT (S4 OR S5)

4/3,AB,IC/1 (Item 1 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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017258392

WPI Acc No: 2005-582015/200559

XPX Acc No: N05-477613

Driver cap assembly for driving shafted bodies, such as rods and/or bolts, into a surface, such as the earth and/or wall, includes tubular body and driver sleeve that may be positioned over and/or about end of shafted body

Patent Assignee: DIGGLE F J (DIGG-I); RIVERS P B (RIVE-I)

Inventor: DIGGLE F J ; RIVERS P B

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20050189129	A1	20050901	US 2004789786	A	20040228	200559 B

Priority Applications (No Type Date): US 2004789786 A 20040228

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 20050189129	A1	9	B25D-009/00	

Abstract (Basic): US 20050189129 A1

Abstract (Basic):

NOVELTY - The **driver** cap assembly (300) includes a tubular body (100) and a **driver** sleeve (200) that may be positioned over and/or about an end of a shafted body (410). A force is applied to the **driver** cap such that the other end of the shafted body is driven into a surface. The interior of a longitudinal bore of the **driver** sleeve is adapted to fit about a proximal end of the shafted body.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a usage method of a **driver** cap assembly.

USE - For driving shafted bodies, such as rods and/or bolts, into a surface, such as the earth and/or wall.

ADVANTAGE - Provides **driver** cap assembly that accommodates a variety of shaft sizes and shapes, and that prevents fraying of top of shaft when it is subjected to forceful impact.

DESCRIPTION OF DRAWING(S) - The figure is a perspective, cut away

side view of an assembled **driver** cap.

Tubular body (100)

**Driver** sleeve (200)

**Driver** cap assembly (300)

Shafted body (410)

pp; 9 DwgNo 4/8

International Patent Class (Main): B25D-009/00

File 2:INSPEC 1898-2006/Mar W3  
(c) 2006 Institution of Electrical Engineers  
File 8:Ei Compendex(R) 1970-2006/Mar W2  
(c) 2006 Elsevier Eng. Info. Inc.  
File 94:JICST-EPlus 1985-2006/Jan W1  
(c) 2006 Japan Science and Tech Corp (JST)  
File 144:Pascal 1973-2006/Mar W1  
(c) 2006 INIST/CNRS  
File 34:SciSearch(R) Cited Ref Sci 1990-2006/Mar W3  
(c) 2006 Inst for Sci Info  
File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec  
(c) 1998 Inst for Sci Info

Set	Items	Description
S1	46	AU=(RIVERS P? OR RIVERS, P?)
S2	2	AU=(DIGGLE F? OR DIGGLE, F?)
S3	48	S1:S2
S4	32	RD (unique items)
S5	96728	DRIVER? ?
S6	0	S4 AND S5
S7	32	Sort S4/ALL/PY,A [not relevant]

File 98:General Sci Abs 1984-2004/Dec  
(c) 2005 The HW Wilson Co.  
File 16:Gale Group PROMT(R) 1990-2006/Mar 27  
(c) 2006 The Gale Group  
File 160:Gale Group PROMT(R) 1972-1989  
(c) 1999 The Gale Group  
File 148:Gale Group Trade & Industry DB 1976-2006/Mar 24  
(c) 2006 The Gale Group  
File 621:Gale Group New Prod. Annou. (R) 1985-2006/Mar 24  
(c) 2006 The Gale Group  
File 635:Business Dateline(R) 1985-2006/Mar 25  
(c) 2006 ProQuest Info&Learning  
File 636:Gale Group Newsletter DB(TM) 1987-2006/Mar 24  
(c) 2006 The Gale Group

Set	Items	Description
S1	64	PAUL(1W)RIVERS
S2	0	(FRED OR FREDERICK)(1W)DIGGLE
S3	659	DIGGLE
S4	0	S1 AND S3
S5	612406	DRIVER? ?
S6	10	S1:S3 AND S5
S7	8	RD (unique items) [not relevant]



**Hydraulic hammer has housing for shaft of bit which contains upper and lower tubular sleeves, each sleeve consisting of rigid outer and inner sleeve and annular space between sleeves being filled with elastomer**

**Patent number:** DE10041890

**Publication date:** 2001-11-22

**Inventor:** MOERS WOLFGANG (DE)

**Applicant:** MOERS WOLFGANG (DE)

**Classification:**

- international: **B25D17/08; B25D17/00;** (IPC1-7): B25D17/08;  
B25D9/00; B25D17/11

- european: B25D17/08

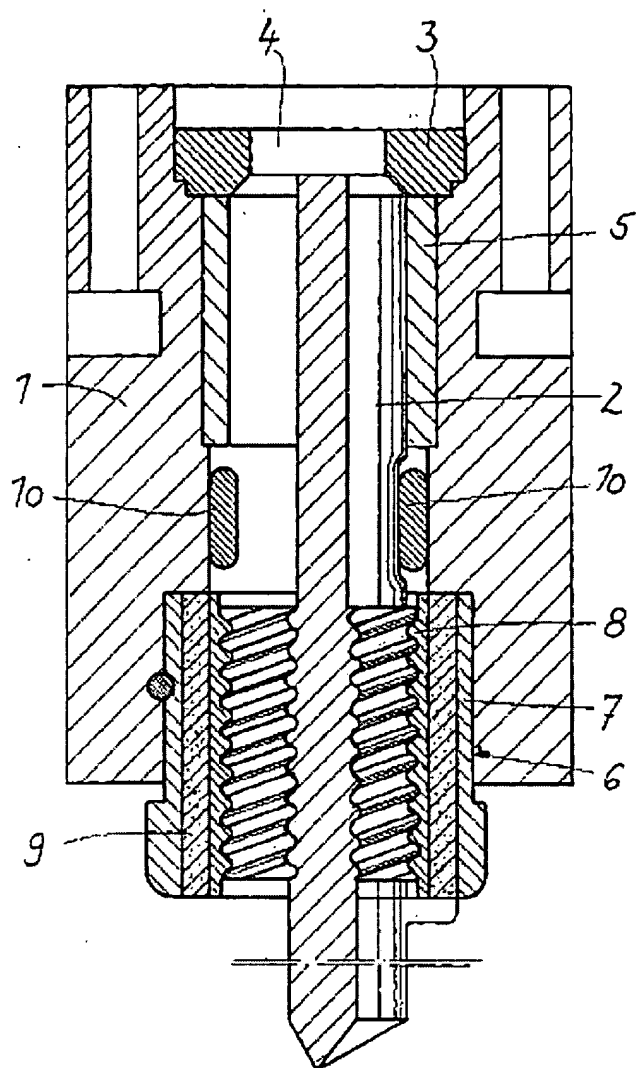
**Application number:** DE20001041890 20000825

**Priority number(s):** DE20001041890 20000825

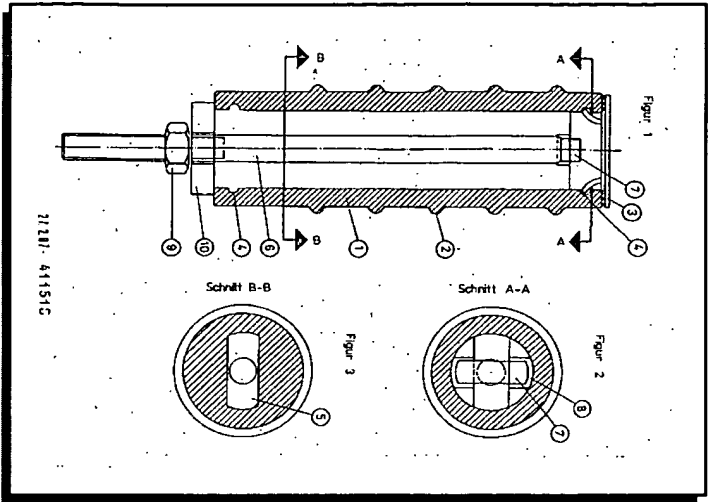
**Report a data error here**

**Abstract of DE10041890**

Hydraulic hammer has a housing (1) for the shaft (2) of the bit which contains upper and lower tubular sleeves (5, 6). Each sleeve consists of a rigid outer sleeve (7) which fits into the housing and a rigid inner sleeve (8) which can be attached to the shaft. An annular space between the two sleeves is filled with an elastomer (9).



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DD 257852

**PERCUSSION TOOLS**

**Patent number:** DE2511045  
**Publication date:** 1976-09-23  
**Inventor:** HOLZAEPFEL JCOB  
**Applicant:** DUSS MASCHF  
**Classification:**  
- international: **B25D11/12; B25D17/08; F16J15/32; B25D11/00; B25D17/00; F16J15/32; (IPC1-7): B25D17/00; E21C3/04**  
- european: B25D11/12B; B25D17/08; F16J15/32B  
**Application number:** DE19752511045 19750313  
**Priority number(s):** DE19752511045 19750313

**Also published as:**

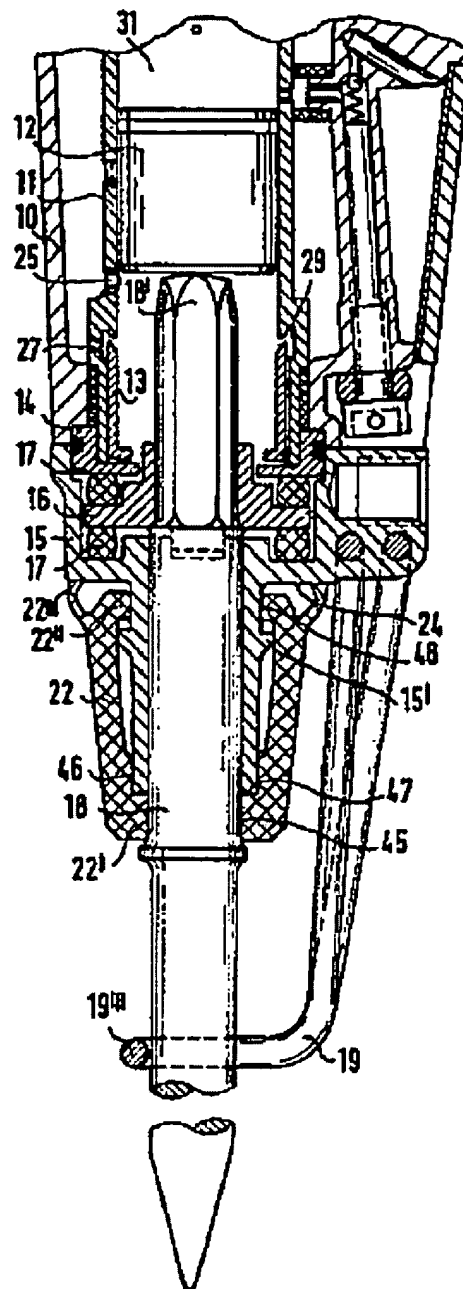
 NL7602457 (A)  
 GB1537893 (A)  
 FR2303646 (A1)  
 CH612872 (A5)

**Report a data error here**

Abstract not available for DE2511045

Abstract of corresponding document: **GB1537893**

Axial blows are rhythmically imparted indirectly or directly to the tool (18) by means of a striker (12) oscillating in a reciprocating manner in a cylinder (11). A collar (22) protecting the tool bearing (15) from dust and the like and made of an elastic material interacts in a sealing manner with the tool bearing on the one hand and with the tool (18) on the other hand. In this arrangement, the recess-free circumferential surface of the tool shank is embraced with frictional adhesion by a clamped contact surface, axially displaceable on this circumferential surface, of the sleeve-shaped collar, and the contact surface of the collar (22) interacting with the tool bearing is dimensioned in such a way that there is only slight frictional adhesion or no frictional adhesion. The axial movement transmitted to the collar (22) by the axial percussion movement of the tool (18) is limited by stops (15', 24) of the tool bearing, between which a flange of the collar is captured. A permanent rhythmic deformation of the collar is thereby avoided.

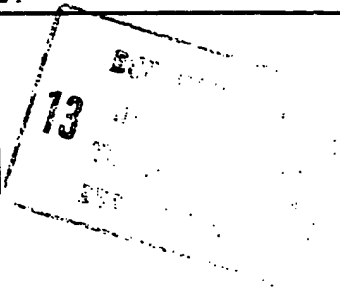


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ГОСУДАРСТВЕННЫЙ КОМИТЕТ СССР  
ПО ДЕЛАМ ИЗОБРЕТЕНИЙ И ОТКРЫТИЙ

# ОПИСАНИЕ ИЗОБРЕТЕНИЯ К АВТОРСКОМУ СВИДЕТЕЛЬСТВУ

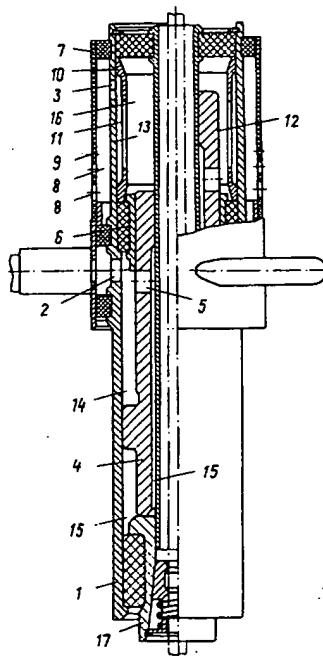


- (21) 3966370/22-03  
(22) 17.10.85  
(46) 28.02.87. Бюл. № 8  
(71) Институт горного дела СО АН СССР  
(72) А. Д. Костылев, Б. Б. Данилов,  
Б. Н. Смоляницкий, А. Т. Сырямин,  
И. Л. Чернецкий и В. А. Щербаков  
(53) 622.233.5(088.8)  
(56) Авторское свидетельство СССР  
№ 607885, кл. Е 21 С 3/24, 1978.

Суднишников Б. В., Есин М. М.,  
Тупицын К. К. Исследование и конструи-  
рование пневматических машин ударного  
действия. Новосибирск, Изд-во «Наука и Си-  
бирское отделение», 1985, с. 107, рис. 71.

- (54) ПНЕВМОУДАРНАЯ МАШИНА  
(57) Изобретение относится к горному делу  
и строительству для забивания в грунт стерж-  
невых элементов. Цель — снижение шума  
выхлопа для улучшения санитарно-гигиени-

ческих условий эксплуатации без снижения  
производительности за счет формирования  
равномерного выхлопа воздуха в атмосфе-  
ру. Машина содержит корпус (К) 1 с отвер-  
стиями для впуска 2 и выхлопа 3 воздуха,  
ударник (У) 4 с осевым каналом и радиаль-  
ными отверстиями 5 и распределительную  
штулку (В) 6. Внутри К 1 установлены цент-  
ральная трубка и глушитель 7 шума с ок-  
нами 8, образующий с К 1 камеру 9 глуше-  
ния шума. Окна 8 выполнены по периметру  
глушителя 7 в несколько рядов и смещены  
в осевом направлении относительно отвер-  
стий 3 в К 1. Площадь поперечного сече-  
ния окон 8 каждого ряда увеличивается  
по мере удаления от отверстий 3. В верхней  
части К 1 установлена распорная В 10 с  
пазами 11 — распределитель выхлопа. Она  
образует с К 1 камеру 13 расширения, а с  
У 4 — кольцевой зазор, площадь которого  
не менее площади отверстий 5 в У 4. Пазы



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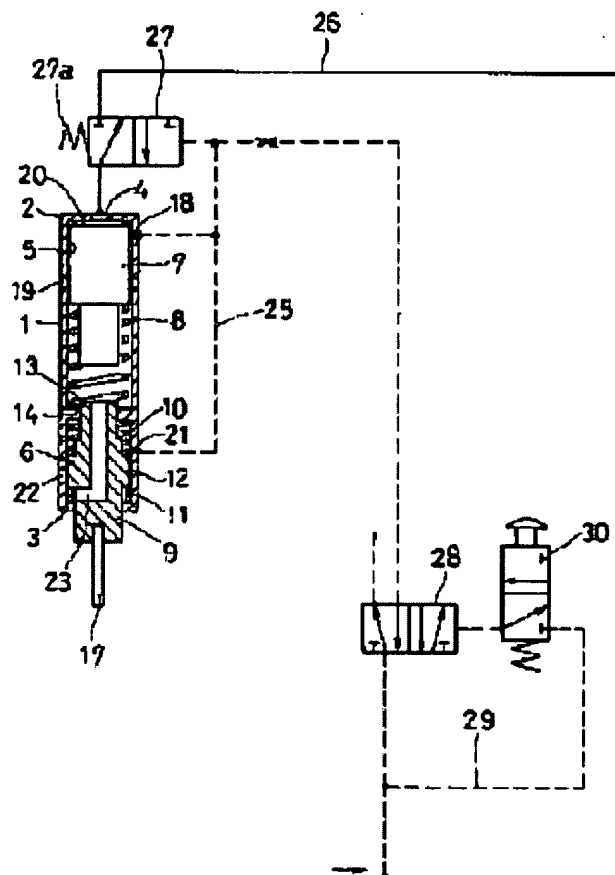
## HAMMER DEVICE

**Patent number:** JP5023977  
**Publication date:** 1993-02-02  
**Inventor:** SESHIMO SATORU  
**Applicant:** OORUEYAA KK  
**Classification:**  
- international: **B25B27/08; B25D9/02; B25D9/04; B25B27/02; B25D9/00;** (IPC1-7): B25B27/08; B25D9/02  
- european:  
**Application number:** JP19910175421 19910716  
**Priority number(s):** JP19910175421 19910716

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### Abstract of JP5023977

**PURPOSE:** To provide a hammer unit which is able to automatically punch a pin in an efficient manner. **CONSTITUTION:** A piston 7, a hammer 9 being hit by a forward movement of this piston 7 and two springs 8, 10 pressing the piston 7 to a cylinder 1 and the hammer 9 toward a rod cover 3 of the cylinder respectively are all built in an inner part of the cylinder 1. In addition, in this cylinder 1, there are provided a first small hole 18, which is closed by a backward movement of the piston 7, and a second small hole 21 being closed by a backward movement of the hammer 9, respectively. Then, an air charge hole 4 is formed in the head cover 2 of the cylinder 1. A directional control valve 27 is built in an air charging passage 26 connected to the air charge hole 4. In succession, the directional control valve 27 is automatically selected by a pressure variation in a pilot passage 25 being connected to both these small holes 18 and 21 and interconnected to the air charging passage 26, while the piston 7 is moved in both directions by dint of supply pressure of compressed air flowing into a piston rear chamber 20 from the air-charge hole 4 and resilience of the spring 8, thereby hitting the hammer 9 at the forward movement.



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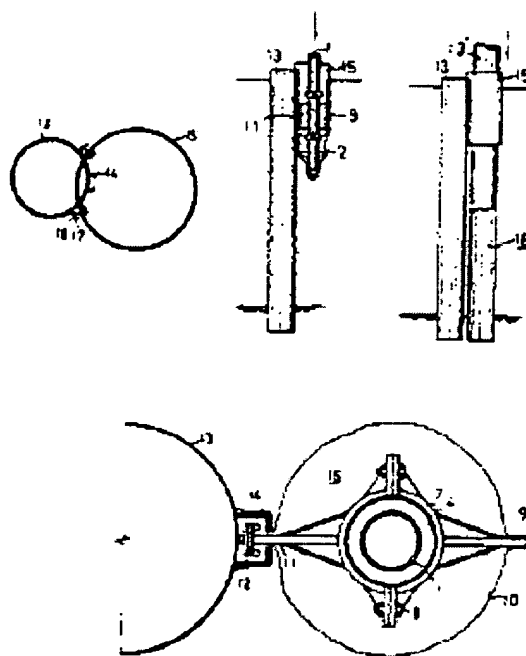
## PILE DRIVINGGIN METHOD

**Patent number:** JP55013386  
**Publication date:** 1980-01-30  
**Inventor:** HIRAOKA SHIGEAKI; KONNO SHIYOUZOU;  
 FUCHIMOTO SAKAE; YOSHINO YUUICHI  
**Applicant:** KAJIMA CORP  
**Classification:**  
 - international: **E02D7/00; E21B17/10; E02D7/00; E21B17/00; (IPC1-7): E02D7/00; E21B17/10**  
 - european:  
**Application number:** JP19790018108 19790219  
**Priority number(s):** JP19790018108 19790219

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### Abstract of JP55013386

**PURPOSE:** To enable a reliable driving-in of piles at regular intervals and with less noise, by boring by means of a digging machine at the inside of a stand pipe which is hooked at a pile driven in and is driven in at a given position, and by erecting a pile in the bore.  
**CONSTITUTION:** A stand pipe 15, whose cut parts 18 are hooked at two guide rails 17 of a driven-in pile 13, is driven in by means of a vibro-hammer at a position covering a place where a pile is driven in. A boring rod 1 is inserted into the pipe 15, and a hook part 12 being along the longitudinal direction of the rod is hooked at a guide rail 14. Afterwards the rod 1 is rotated downward until it bores down to the depth of a support layer, and is pulled out. Then a pile 13' is erected in a bore 16, and the stand pipe 15 is removed. The pile 13' being considered to be the previous driven-in pile, the aforesaid processes are repeatedly carried out. Since boring is performed being guided by the guide rail 14, driving-in of piles for sand guards can be reliably conducted at regular intervals and also in parallel.



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**HYDRAULIC IMPACT DEVICE****Patent number:** GB2014651**Publication date:** 1979-08-30**Inventor:****Applicant:** JUSTUS E J**Classification:****- international:** *B25D9/14; B25D9/20; B25D17/24; B25D9/00; B25D17/00; (IPC1-7): F03C1/14; F03C1/26***- european:** B25D9/14B; B25D9/20; B25D17/24**Application number:** GB19790003622 19790201**Priority number(s):** US19780879216 19780221**Also published as:**

US4231434 (A1)

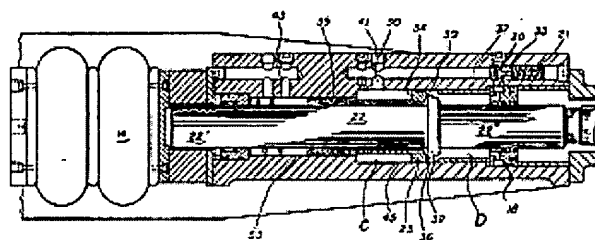
IT1111126 (B)

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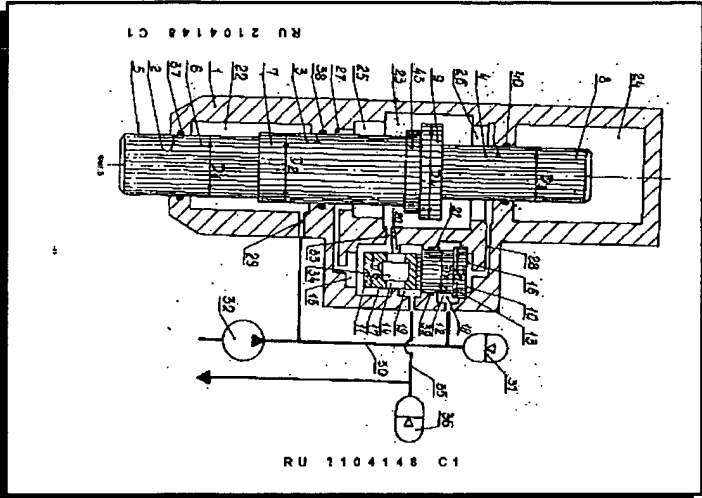
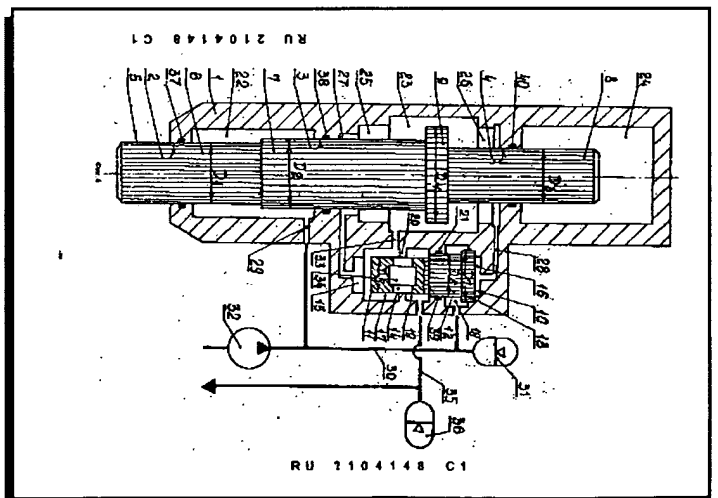
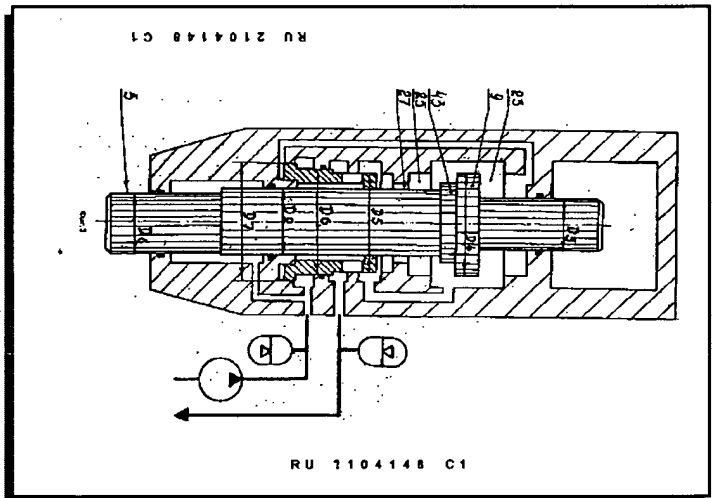
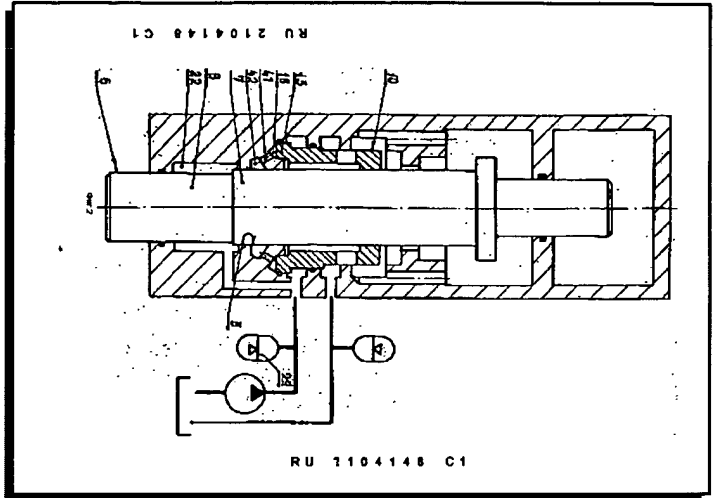
Abstract not available for GB2014651

Abstract of corresponding document: **US4231434**

A hydraulic impact device in which a hammer member having a piston portion is reciprocally disposed in a cylinder, a reciprocating sleeve valve is disposed within the cylinder and surrounds the hammer member. The sleeve valve has a first peripheral seal with an upper portion of the cylinder and a second peripheral seal with the lower portion of the cylinder so that an annular cavity is formed between the first and the second peripheral seals. The bottom portion of the sleeve valve forms a single seal with the upper portion of the piston section. A pressure relief valve is situated between the inlet to said annular cavity and an annular cavity below the piston portion to insure that the pressure in said annular cavity is greater than the pressure in the cavity below the piston portion and the sleeve valve thus effecting a sealing force between the sleeve valve and the upper face of the piston portion. An energy storage means is provided for receiving energy from said ram member during its upward stroke. The upper and lower sealing portions of said sleeve valve are axially spaced such that when said lower sealing portion seals a fluid inlet port, the upper sealing portion opens a fluid outlet port thereby reducing the pressure in said annular cavity by interrupting a fluid communication between the inlet port and said annular cavity and establishing fluid communication between the outlet port and said annular cavity.

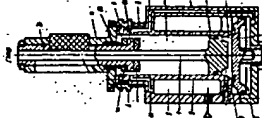


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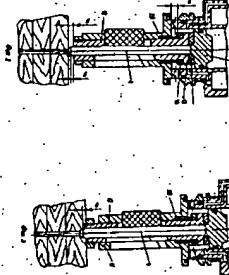


RU 2104148

ПОДАЧЬТЕ СВОИ КОПИЯ  
ПО АДРЕСУ ПОДПИСАНИЯ  
И АВТОРСКОМУ СВИДЕТЕЛЬСТВУ

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DEPARTMENT OF THE ARMY  
OFFICE OF THE CHIEF OF STAFF  
WASHINGTON, D. C. 20315  
ATTENTION: THE SECRETARY  
DATE: 10/10/68  
TO: THE SECRETARY  
FROM: THE SECRETARY  
SUBJECT: THE SECRETARY  
RE: THE SECRETARY